Whither China's Scientific & Engineering Talent Pool?[1]

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When China's leaders surveyed their development prospects at the onset of the twenty-first century, they reached an increasingly obvious conclusion, namely, their current economic development strategy, heavily dependent on natural resources, fossil fuel, exports based on cheap labor, and extensive capital investment, was no longer viable or attractive. For a range of pressing competitiveness, national security, and sustainability reasons, they decided to shift gears and as a result have embarked on an effort to move their country in the direction of building a so-called "knowledge-based economy"; in this new model, innovation and talent are positioned as the new primary drivers of enhanced economic performance. Underlying this transition also seems to be a rather pervasive sense of urgency about the need for China to catch up more quickly with the rest of the world, especially in terms of science and technology (S&T) capabilities. In fact, the top echelon of Chinese leaders, foremost among them both President Hu Jintao and Premier Wen Jiabao, has recognized that solving the country's talent issue is crucial to China's ability to cope with an increasingly competitive international environment, build a comprehensively well-off and harmonious society, and more importantly, consolidate and fortify the ruling base of the Chinese Communist Party (CCP). China's leaders further understand that the successful creation and growth of a knowledge-based economy requires a greatly enhanced talent pool composed of high-quality scientists, engineers, and other professionals.

Indeed, in fulfilling the policies of "rejuvenating the nation with science, technology, and education" (*kejiao xingguo*) and "empowering the nation through talent" (*rencai qiangguo*), as reflection of new thinking, China literally has turned out millions of college students since 1999, especially in science and engineering, and more recently in management, to meet the country's new innovation imperatives. Government officials have tried to upgrade the existing Chinese S&T workforce by dispatching many talented individuals overseas for advanced training and

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[1] The proposed paper draws from the authors' book, *China's Emerging Technological Edge: Assessing the Role of High-End Talent* (Cambridge and New York: Cambridge University Press, 2009).

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research experience to expose them to international standards of world-class science and know-how. Today, it almost has become common practice, even for a large number of Chinese undergraduates, along with their counterparts at graduate level, to obtain foreign study experience. Exposure to the outside world, particularly Western education and modern technology, appears to have stimulated entrepreneurial activities among many returning Chinese S&T personnel as they seek to harness their newly acquired know-how and convert it into new, commercially viable products and services. China also has encouraged multinational corporations (MNCs) to move up the value chain in their China operations, upgrading their manufacturing activities and adding a substantial research and development (R&D) capability to their local presence in China. Meanwhile, MNCs are pro-actively engaged in the hunt for Chinese "brainpower," as they seek to access the best and brightest Chinese talent, thus creating the context for the possible emergence of a series of so-called "talent wars" in China.

This new, very positive orientation toward talent and high-end knowledge seems to have begun to pay off, as China in the early twenty-first century is significantly different from the China that existed when the reform and open-door policy started in the late 1970s or even Chinese society in the early 1990s when China tried to step out of the shadows of the Tiananmen Square crackdown. In fact, it is increasingly clear that China is now not only better positioned but also steadily more confident about becoming a true economic and technological power on both regional and global levels. Moreover, it also is obvious to Chinese political and scientific leaders that the country's recent progress and future potential explicitly can be attributed to the increasing productivity and performance of the nation's emerging talent assets. The proposed paper will highlight critical trends on both the supply and demand side of China's talent equation as well as analyze the deployment and utilization of the scientific and engineering workforce. Relying on extensive fieldwork and a unique compilation of statistical data from across several Chinese government agencies, the paper will show how China's talent pool, despite some obvious shortcomings in the structure and operate of the country's innovation system, is increasingly becoming a new source of competitive advantage for China, gradually, albeit steadily, replacing low cost labor as the PRC's most important strategic S&T asset.